N.S.W. DEPARTMENT OF AGRICULTURE.

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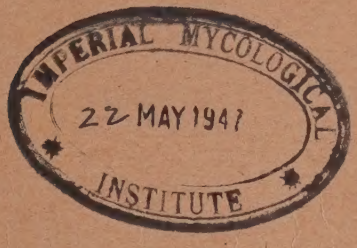

PLANT DISEASE SURVEY

for the

TWELVE MONTH PERIOD ENDING 30TH JUNE, 1946.

Sixteenth Annual Report.

Notes compiled by Officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture.

ACKNOWLEDGMENTS. Grateful acknowledgment is made of data provided by the Colonial Sugar Refining Company Ltd., in respect of diseases of sugar cane; also information made available by the Specialist and Field Officers of the Divisions of Horticulture and Plant Industry in the Department of Agriculture.

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N.S.W. DEPARTMENT OF AGRICULTURE.

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DEPARTMENT OF AGRICULTURE.

NEW SOUTH WALES.

Biological Branch - Division of Science Services.

PLANT DISEASE SURVEY - 1945-46.

Sixteenth Annual Report.

WEATHER CONDITIONS.

During the 1945-46 season, there were fairly satisfactory falls of rain during the winter months, though the Spring was dry and late. Intermittent low temperature periods sometimes accompanied by heavy frosts were experienced during September.

In early Summer, hot and rather dry weather was experienced in most parts of the State. This condition changed in January to one of repeated coastal floodings often accompanied by gales and destructive hail storms. The hot weather continued. Drought conditions later developed in the S.W. portion of the State.

Autumn and early winter were cold and wet on the coast and unusually heavy snowfalls occurred in many inland areas.

CEREALS AND GRASSES.

BARLEY:

POWDERY MILDEW (Erysiphe graminis hordei) occurred in some crops on the Central Western slopes.

No other reports of disease in barley crops were received.

BROOM MILLET:

The 1945-46 season was the most satisfactory for some years, chiefly because the crop is grown in Coastal Districts between September and January and good conditions without flooding were experienced during these months. In the Tumut area (South-Western slopes) where the season extends much later, conditions were also satisfactory. Dry conditions prevailed in the Tamworth area (North Western slopes) and yields were light.

No diseases were reported.

MAIZE:

Seasonal conditions, in general, were very satisfactory for germination and growth in Coastal and Northern Tableland areas. Severe floods were experienced from Richmond to Wyong in the autumn and crop yields as a result were considerably reduced in this section of the State. Early frosts were experienced in March on the Northern Tablelands and these also reduced yields to some extent. Very dry conditions prevailed in the North-west and South-Western slopes; crop yields were very light and the incidence of disease low.

COB ROT (Acrostalagmus, Alternaria and Cephalothecium spp.) occurred on the Northern Tablelands and in the sweet-corn areas on the Hawkesbury, following ear-worm attack.

DRY ROT (Diplodia zeae) developed to a considerable extent in Coastal crops.

HEAD SMUT (Sorosporium reilianum - Sphacelotheca reiliana) was reported in a crop of Golden Nugget at Bega, South Coast.

SEED ROT (Acrostalagmus sp.) occurred in a grain sample from Grafton.

GRAIN MOULD (Penicillium sp., Fusarium sp., Sporotrichum sp. and Verticillium sp.) was present in a sample from Lismore. Mouldiness of the grain followed upon flood inundation of the crop.

OATS.

STEM RUST (Puccinia graminis avenae) and CROWN RUST (Puccinia coronata) were prevalent in Coastal and North-Western districts.

BACTERIAL STRIPE (Pseudomonas striafaciens) was quite widespread in the Gunnedah district. The disease was also reported from the Metropolitan area.

LEAF SPOT (Helminthosporium avenae) was reported from both the Riverina and the North Western slopes but caused little damage.

LOOSE SMUT (Ustilago avenae) occurred in several oat crops on the Central Western slopes, but infection was not heavy.

SPECKLED BLOTCH (Septoria avenae) was widespread last season; being reported from the North Western Slopes and Plains, Central Western slopes and Tablelands, and from the South Western Slopes and the Riverina. Damage, however, was of minor importance.

PURPLE PATCH (Rhizoctonia solani) was reported in one crop in the Molong district, following upon a cool moist winter. Heavy grazing and the advent of warmer weather subsequently lead to a partial recovery in this crop.

RICE.

Approximately 38,000 acres of rice were sown last season. An excellent season was experienced and indications are that the yield will approach the record of 2.23 tons per acre obtained in the 1938-39 season.

Again there were no reports of disease in crops and apart from a minor outbreak of Downy Mildew (Sclerospora macrospora) at Yanco in 1930 no parasitic disease has yet been recorded on rice in New South Wales.

RYE.

No records.

SORGHUM.

The 1945-46 season was generally unfavourable for this crop. In the Inverell district (North-West) which is the main centre of production; drought conditions prevailed until the third week in January. Consequently, there was not sufficient time for the crop to mature before frost conditions were experienced. Yields were light.

ROOT ROT (Pythium sp.) was reported in a crop of Day Milo on the Murrumbidgee Irrigation Area. It was estimated that 15% of the plants were affected.

LEAF SPOT (Helminthosporium turcicum) was present in some crops on the Central Tablelands. Damage was of minor importance.

BACTERIAL STRIPE (Pseudomonas andropogoni) caused minor damage only, on the Northern Tablelands.

Secondary infection of sorghum heads by saprophytic species of Alternaria and Cephalosporium was observed in samples from the M.I.A.

GRAIN MOULD (Penicillium, Aspergillus, Botrytis and Cephalosporium spp.) was present in grain samples from various parts of the State.

SUGAR CANE.

Information supplied by the Colonial Sugar Refining Company shows that during the 1945-46 season, 166,069 tons of sugar cane were crushed. Losses due to disease were estimated as follows:-

FIJI (virus)	2,597 tons
MOSAIC (virus)	129 tons
RED STRIPE (Xanthomonas rubrilineans)	40 tons
Total -	2,766 tons.

The following information has also been abstracted from the C.S.R. Company's reports.

FIJI DISEASE (Virus). The loss from Fiji disease was again high, particularly in the Richmond River cane growing areas. Failure to observe the recommended control measures and extensive cultivation of the highly susceptible variety, P.O.J. 2878 in this area has been largely responsible for continued losses.

Fiji disease was also widespread in the Clarence River district. Because of their extreme susceptibility to this disease, the varieties P.O.J. 2878 and P.O.J. 2883 have been largely replaced by the more resistant varieties, Atlas, Solon and Akbar. Vesta, the most important variety grown at the present time on the Clarence is now seriously threatened by this disease.

Fiji disease is also serious on the Tweed River. A further spread of the disease has taken place in P.O.J. 2883 and it is now being replaced by more resistant varieties.

EYE SPOT DISEASE (Helminthosporium sacchari). Some cases of severe infection occurred in crops of Atlas grown in rich sandy soils on the Clarence River.

LEAF SCALD (Bacterium albilineans). An outbreak of this disease in the variety Solon was reported from one farm at Teven Creek in the Richmond River District.

Traces of other diseases were observed but their apparent effect was too small to be worth recording.

WHEAT.

Generally, conditions in the northern half of the wheat belt last season were far more favourable for fungal development than in the southern wheat districts. Apart from "bunt", the incidence of diseases of wheat was low in Central, Western, South Western and Riverina districts. On the other hand, many crops in the North West of the State suffered considerably from disease attack.

Excellent yields were obtained in the North West, generally and in many parts of the Central Western Wheat belt. Drought conditions again prevailed in the Riverina and crop yields were below average as a result.

Prospects for next season's crop are not heartening. The North West has experienced one of the driest summers on record and crops in Southern districts are in urgent need of rain. After promising early rains, Central Western Wheat districts also require further falls. As a result of this general need for rain throughout the wheat belt, crops are almost universally backward.

STEM RUST (Puccinia graminis tritici) assumed epidemic proportions in the Gravesend-Warialda-Bingara area. The advent of dry weather towards the latter part of the season checked an outbreak, which at one stage gave indications of spreading throughout the entire North-Western wheat-growing areas. Several crops of Pusa 111, Eureka and Eureka 11 showed very severe infection ratings (60-75%). A high degree of resistance to rust was shown by all five of the recently released varieties; Charter, Celebration, Yalta, Gabo and Kendee.

The variety Eureka showed full susceptibility to stem rust in many areas. In 1937 and 1938, this variety was recommended as being rust resistant, particularly to the virulent race 34, which had attained dominance in the North West of the State. In 1941, odd plants of Eureka showing stem rust infection were observed in the field. The following year it became abundantly evident that Eureka's resistance had broken down and observations made during the 1945-46 season confirmed the view that the variety must now be regarded as fully susceptible to stem rust.

Eureka, however, remains resistant to race 34 and it appears that there has been a further significant change in the rust flora of the state. Investigations on the identity of the rust which attacks Eureka are proceeding under the direction of Dr.W.L.Waterhouse at Sydney University.

FROST INJURY: Considerable frost injury was reported from North-Western districts. One very early crop of the variety, Flora; at North Star showed 20-60% frost damage. Crop stands in the varietal yield trials conducted by the Department of Agriculture at Inverell were badly frosted prior to ear emergence. Two newly recommended varieties, Gabo and Yalta, showed a degree of frost resistance whilst the three most susceptible varieties were Pusa 111, Charter and Kendee.

To a lesser degree, some crops on the Central Western slopes were also damaged by frost.

FLAG SMUT (Urocystis tritici) was widespread but did not greatly reduce crop yields in general. Two severely infected crops were reported - one, a crop of Ford at Warialda showing 40-50% infection and the other, a crop of Flora at Gravesend showing a similar degree of infection.

LEAF RUST (Puccinia triticina) was widespread in North Western areas but, according to reports, caused damage of minor importance only. However, there appears to be a tendency to underestimate the damage caused annually by leaf rust in this State and losses last year may have been considerably greater than was generally believed.

BUNT (Tilletia caries (T. tritici) and T. foetida (T. levis) was prevalent on the South-Western slopes and in the Riverina. Infection was also observed in Central-Western and North-Western districts. In general, however, crops in the Southern wheat-growing areas, showed a higher incidence of bunt than did Northern crops.

During the latter war years, wheat grading plants have found it difficult to cope with the increased quantities of seed to be treated by dusting. In addition, recurrent dry seasons in Southern areas have led to a temptation to sow without dusting. Last season's experience impressed on many farmers the risk associated with such a procedure. The noticeable increase in the smut diseases of cereals in general during the war years is largely attributable to this neglect on the farmer's part to ensure that grain for seed purposes has been correctly treated. Reports indicate that a greater proportion of seed grain was treated for the 1946-47 season's sowing than for some years past.

VIRESCENCE: (non-parasitic) An interesting condition, known as virescence, appeared in many Riverina wheat crops last season. Abnormal seedlings in crops of Ford, Bencubbin, Bordan and Ranee showed an albino-like leaf condition early in their growth. Later in the season, however, the majority of affected leaves re-greened and it appears that the unusual weather conditions which prevailed during the winter months were instrumental in the expression of this condition. The last report of the presence of albino-like seedlings in commercial wheat crops in New South Wales was in the Wagga district in the 1925/26 season.

LEAF SPOT: (Septoria tritici). Septoria infection in areas north of a line linking Pilliga, Narrabri and Barraba was very slight. Crops in the southern half of the Northern wheat belt, however, were at times severely attacked. The cooler conditions prevailing during the growing period of the crop in these areas were apparently more conducive to leaf spot development than were the higher temperatures experienced further north. No record of this disease was made from Central-Western, South-Western or Riverina districts.

TAKE ALL (Ophiobolus graminis) was reported only from the North Western slopes where 5% damage was estimated in one 50 acre crop.

BLACK CHAFF (Xanthomonas translucens var. undulosa) was widely distributed but caused damage of minor importance only.

POWDERY MILDEW (Erysiphe graminis) was reported from several North-Western areas. The variety Pusa 111 showed considerable infection in the Bingara district but damage, generally, was inconsequential.

GRASSES.

BARLEY GRASS (Hordeum leporinum)

RUST (Puccinia graminis) was quite wide-spread on Barley Grass in North Western districts.

LEAF SPOT (Helminthosporium sp.) was prevalent in the Gunnedah area.

BUNT (Tilletia hordei) was reported from North-Western New South Wales.

BROME OAT GRASS (Bromus arenarius).

LEAF SPOT (Helminthosporium sp.) was reported from Inverell.

CANARY GRASS (Phalaris canariensis).

POWDERY MILDEW (Erysiphe graminis) attacking Canary Grass was observed in the Narrabri district.

COUCH GRASS (Cynodon dactylon)

SMUT (Ustilago cynodontis) was again very prevalent last season, particularly in the Metropolitan Area.

GOLDEN TOP (Lamarckia aurea)

RUST (Puccinia graminis) occurred widely throughout the North-Western districts.

PASPALUM (Paspalum dilatatum)

ERGOT (Claviceps paspali) was again prevalent in Coastal and Metropolitan areas.

FIELD AND FODDER CROPS.

CLOVER.

No records.

COTTON.

The area under cotton in New South Wales last season was negligible, not amounting to more than five acres. No diseases were reported.

LINSEED.

Approximately 700 acres were sown to linseed in this State last season. Apart from a CHOCOLATE SPOT leaf condition (apparently non-parasitic) observed in a crop of the variety Walsh at North Star, no diseases were reported.

KUDZU VINE.

HALO BLIGHT (Pseudomonas medicaginis var. phaseolicola) was reported from Castle Hill.

LUCERNE.

DOWNY MILDEW (Peronospora trifoliorum) (P. aestivalis) was reported from the Murrumbidgee Irrigation Area, where some plants in lucerne stands, grown as green crops in citrus orchards, were heavily infected.

RUST (Uromyces medicaginis) was present in some lucerne stands in the North-West of the State but caused only minor damage.

LEAF SPOT (Pseudopeziza medicaginis) caused minor damage to stands on the Central Coast.

LUPINS.

ROOT ROT (Pythium sp.) was observed in the Metropolitan area and in the Gosford district.

SCLEROTINIA STEM ROT (Sclerotinia sclerotiorum) was widespread in crops on the Murrumbidgee Irrigation Area and was also reported from the Gosford district.

STEM ROT (Botrytis cinerea) was observed in the same localities as Sclerotinia Stem Rot but occurred less frequently.

VIRUS STREAK of lupins was reported from the Murrumbidgee Irrigation Area.

MEDICS.

MOSAIC (Virus) was reported on BURR TREFOIL (Medicago denticulata) from the Murrumbidgee Irrigation Area.

TOBACCO.

An area in the vicinity of 425 acres was grown in New South Wales last season. BLUE MOULD (Peronospora tabacina) was rather severe early in the season. Infection decreased as the season progressed and subsequent losses were negligible.

CANE FRUITS.

LOGANBERRY.

No records.

RASPBERRY.

No records.

YOUNGBERRY.

ANTHRACNOSE (Elsinoe veneta). Cane and leaf spotting was noted in a commercial block of youngberries at Robertson following Autumn rains. Bordeaux mixture and copper oxychloride sprays (with the addition of white oil) applied at spur burst, when flower buds were showing white and following harvesting, (early January) completely controlled the disease in field demonstration plots. It is thought that in this year, because of dry spring conditions, the first and second spray applications were of less importance than the third application which gave protection to the young canes through the subsequent wet weather of early autumn.

CROWN GALL (Agrobacterium tumefaciens) was noted on rooted cuttings at Bathurst Experiment Farm and on a few 4 year old plants at Robertson.

CITRUS FRUITS.

PHYTOPHTHORA ROOT and COLLAR ROT (Phytophthora citrophthora). Heavy rains were experienced in the metropolitan area during the Autumn and Winter of 1945. In consequence, citrus stocks and yearling budded trees in a number of nurseries in the Carlingford and Ermington districts became affected with collar and root rots during the winter months. As was anticipated, when trees were distributed to growers in the Spring of 1945, considerable mortality occurred. Losses of up to 100% were noted in inland and coastal districts and losses of 20-50%, with in addition a percentage of partially affected trees were quite frequent. This occurred despite the fact that nurserymen discarded any obviously affected trees. The position is regarded as serious, not only because of the immediate loss to growers and nurserymen but also because, as a result of the nursery infection, the parasite has been introduced into a number of areas of virgin soil such as the Ballingal and Lake View Extension areas in the M.I.A. and to new areas along the Murray and in the Central West. Another serious angle is that apparently healthy stocks from seed beds in which infection occurred can be expected to carry the infection when planted out in nursery rows. There is therefore a distinct probability that the resulting trees may be infected to a greater or lesser degree. If such trees are planted out in free draining soils, no subsequent damage may be done, but if planted in soils where the drainage is not perfect, they may be unsatisfactory from an early stage or may be unable to withstand unfavourable conditions at a later stage of growth.

The soil in the nurseries most seriously affected is fairly heavy and not well drained. Trees in nurseries or well-drained soils were reasonably free of root rot.

Again in Autumn, 1946, heavy rains fell and collar and root rots have been noted in a number of nurseries in the Metropolitan and Wyong districts. In one nursery, on well drained sandy soil, considerable root infection occurred among two year old seedling stocks, which had been allowed to remain in the seed beds under crowded conditions.

In inland irrigation districts, root rot continues to take toll of trees in heavy soils and over-watered orchards. Loss of trees was reported in some coastal orchards (Hawkesbury River flats) as a consequence of prolonged flooding in April, 1946. Considerable root rot principally of lemons was observed causing yellowing and general unthriftiness in a number of orchards at Somersby, Pitt Town and the Hills district, following Autumn rains.

Collar rots, particularly of lemons, were very prevalent in home gardens in the metropolitan area, following autumn rains in 1945 and again in 1946. In many commercial orchards in the Hills district, noticeably those in the heavier soils, collar rot has been troublesome. Lemons were mainly affected.

BLACK SPOT (Phoma citricarpa). This disease has been light in the Gosford district during the past season. The majority of growers are using the 3-spray programme for control. The cutting back of old trees ("Skeletonizing") with consequent renewal of vigour, improved fertilizer practice due to better prices for fruit and the removal of valencias from the tree in early Summer because of the guaranteed price, have all contributed to the decreased severity of Black Spot during the past several seasons. Some black spot developed on intermediate crop valencias and to a lesser extent on lemons in the Hills district. Apart from disfigurement of fruit, no losses were caused.

MELANOSE (Diaporthe citri) was very evident in old trees in coastal orchards on new autumn growth (1946) and on intermediate crop fruit. Main crop fruit on older trees where control sprays had not been applied showed considerable marking.

LEMON SCAB (Sphaceloma fawcettii scabiosa). Main crop fruit in coastal areas was largely free of scab but some infection of intermediate crop fruit was noted. Unsprayed citrus stocks in several nurseries in the Gosford and Wyong districts were badly affected with scab during the winter of 1945. Fresh infection occurred following rains of Autumn, 1946. Carlingford and Ermington nurseries experienced little trouble from this disease.

BROWN ROT (Phytophthora citrophthora and P. hibernalis) Several cases of brown rot of lemons were noted in metropolitan home gardens during dry hot summer weather, 1946. Heavy dews were evidently sufficient to permit infection taking place. Brown rot was very prevalent on oranges, grapefruit and thorny mandarins in home gardens following rain in the Autumn of 1946. Some infection also occurred in commercial orchards in the Hills and Gosford districts. Except in a few instances, losses were light. Infection of fallen fruit occurred in orchards in low lying parts of Lisarow, Niagara Park and Ourimbah. In these areas, root damage was slight, the soil being very acid. Phytophthora citrophthora was the chief cause of fruit rot; but P. hibernalis was observed in a few cases towards the beginning of winter.

SEPTORIA SPOT (Septoria depressa). Infection was moderately heavy in unsprayed orchards in the M.I.A. No spot developed on the fruit of sprayed trees except where frost injury

had caused a complete breakdown of the rind. Weak trees of lemon and grapefruit which had been badly frosted were found to show development of Septoria lesions on living leaves and twigs.

COLLAR ROT OF SEEDLINGS (Rhizoctonia solani). This disease was particularly prevalent during the early summer of 1945. Seed beds of both rough lemon and P. trifoliata stocks in the metropolitan, Gosford and Hills districts were affected.

ARMILLARIA ROOT ROT (Armillaria mellea). A very considerable increase in clearing has gone on in the Kulnura, Mangrove Mountain, Somersby and Peats Ridge districts and extensive citrus planting is under way or projected. The clearing has been done by bulldozers followed by rippers. Armillaria is endemic to the area and unless the ripping has been done carefully, it can be anticipated that many timber roots will have been left in the soil and infection by Armillaria can be expected to become as serious as it is, at present, in orchards on poorly cleared land throughout this area. Careful ripping appears to be more effective in clearing out roots and stumps than older methods. It has been found in tropical areas where Armillaria occurs, that ringbarking the trees a year or so before clearing, results in depletion of starch reserves in the roots and wood-rotting organisms other than Armillaria become established. Ringbarking is therefore recommended as a preliminary to clearing. This does not appear to be an advantage in the case of hardwoods such as Eucalyptus spp. In a newly cleared area, ringbarked four years previously Armillaria was found actively growing on the dead roots of Eucalyptus gummifera (bloodwood), E. piperita (peppermint), E. scabra (stringybark), E. resinifera (Red mahogany) and Angophora lanceolata (redgum). Red gum and stringy bark apparently rot away fairly quickly and are, therefore, probably of limited importance. Bloodwood roots appear to rot slowly and as this species forms very solid and deep tap roots, it is the most dangerous of the native timbers. Infection was noted on bloodwood roots at a depth of 4ft. 6 ins.

An improved method of clearing away the soil from the butts of citrus trees in infested areas was developed by Mr. Wood, Fruit Inspector, Gosford, in collaboration with a Somersby grower and the local Shire Engineer. It involves the use of a compressed air unit fitted with two 60 ft. hoses, each with a 6ft. rod equipped with a pistol grip shut-off. The soil is blown away from the crown roots. The method is reasonably cheap and very quick.

A type of Armillaria infection was noted at Orangeville where no rhizomorphs were produced. The soil was a sandy loam.

CITRUS BLAST (Pseudomonas syringae). No records.

SOOTY BLOTCH (Gloeodes pomigera) was recorded on unsprayed Washington navels in low-lying orchards in the Ourimbah district in late autumn.

TWIG BLIGHT (Sclerotinia sclerotiorum). This disease was noted in a Gosford nursery and in several Carlingford nurseries causing a limited amount of mortality.

PSOROSIS (Virus). No new records.

MANDARIN BROWN SPOT (cause unknown). No records.

FRUIT DROP (cause not definite). Following heavy rain in early autumn, a considerable drop of oranges, both navel and valencia, occurred in the hills and Gosford districts. It was most noticeable in orchards on rather heavy poorly drained soil and on the south side of the tree and is thought to be associated with mortality of fibre roots.

BURNT LEAF (suspected potash deficiency). Burnt leaf symptoms were not very evident in the Gosford and Moorlands districts in the Spring of 1945. The general use of mixed fertilizers containing potash may be in some measure responsible. One interesting case of the twig die-back symptom associated with the burnt-leaf condition was observed in a block of five year old navels. These had been obtained originally from three different nurseries, in two of which potash deficiency is known to occur. The trees from these nurseries are now showing twig die-back whereas those from the third nursery are still unaffected.

EXANTHEMA (Copper deficiency). Incipient symptoms of copper deficiency were frequently observed on young unsprayed trees, especially in the Mangrove Mountain - Somersby Area. As soon as it becomes necessary to spray for Black Spot or Melanose, this trouble disappears. Copper deficiency is expected to show up early when land now being cleared in this district is planted up.

COPPER INJURY. Following rain and heavy winds in May, 1946, some 22 year-old navel orange trees at Mangrove Mountain split down the butt revealing a rotted trunk centre. The cause of this was traced to an excessive application of copper sulphate when the trees were seven years old (10 lbs. per tree). At the time this caused severe defoliation and fruit fall as well as killing some roots, but the trees apparently recovered after about two years and the mechanical weakness was not suspected.

YELLOW LEAF (Magnesium deficiency). Shortage of dolomite has already resulted in a substantial increase in the amount of yellow leaf showing in the Gosford and Mangrove Mountain areas and many trees may be adversely affected in the coming summer. The possibility is being explored of using magnesium sulphate in fertilizer mixtures, especially on soils where it is undesirable to lessen acidity because of the possibility of the development of Phytophthora root rot.

MOTTLE LEAF (Zinc deficiency). This disorder continues to be of importance in irrigated western districts, expecially on the lighter types of soil. Marked tree unthriftiness occurs in a number of orchards at Somersby, Mangrove Mountain and Peats Ridge. It is characterised by poor growth, sparse foliage, small leaves and a chlorotic appearance suggestive of a combination of zinc and manganese deficiency. Spraying trials will be carried out during the coming year.

MANGANESE DEFICIENCY. Symptoms were noted in home gardens in the metropolitan area. The prevalence of deficiencies of magnesium, copper, manganese, potassium and possibly zinc in the Mangrove Mountain, Peats Ridge, Somersby and Kulnura areas indicate the desirability of formulating a fertilizer and spray programme which will remedy the deficiencies before they have had time to affect crop production.

LIME REDUCED CHLOROSIS. This was observed in orchards at Pomona, Curlwaa and Coomealla in areas where a limestone-marl sub-soil of high alkalinity was present.

SALT INJURY. Defoliation of citrus was very serious in irrigation settlements on the lower Murray. Leaf fall commenced in mid-September, 1945 and lasted for 3 to 4 weeks. Trees in badly affected blocks lost most of their leaves. New growth has been variable. Some blocks have responded well and the trees are now well covered with new healthy foliage; in others the new growth has been poor. Analysis of fallen leaves by the Chemist Branch showed that in most cases, salt was present in toxic amounts. It is thought that the unusually general nature of the trouble was due to winter rains washing surface salt down into the root zone. The

South-western districts of N.S.W. until May, 1945, were in the grip of a drought of unprecedented severity and no useful falls had been received along the lower Murray for almost three years prior to the breaking of the drought. It is thought that during this time salt accumulated in the surface layers of the soil, especially along the margins of furrows and under trees. Winter rains were sufficient to carry this salt into the root zone but not to leach it away. Leaf fall then occurred when the rising spring temperatures brought about an increase in transpiration. Salt-affected patches of soil had been noted in orchards in 1944 and 1945. Trees affected with root rot showed severe defoliation. During autumn, 1945, the flow of the Murray River was reduced and the salt content rose, though not to dangerous proportions, and this may have been a contributory factor. Summer 1944-5 was particularly hot, and blasting winds and continual dense dust-storms were experienced. It is possible that these conditions may have affected the vitality of the leaves.

Defoliation in the Spring following intake of toxic quantities of salt was also noted in parts of the Murrumbidgee areas. Some leaf scorch following frosts was also found to be associated with salt accumulation in this area.

WHEENY DIE BACK (cause unknown). Die back associated with heavy cropping was observed at Ourimbah and in the Hills district. Following severe frosts, frost injury was noted on limbs carrying heavy crops in a Leeton orchard. This type of die-back had not been observed in Wheeny grapefruit in inland areas previously, but apparently the heavy cropping had weakened occasional limbs sufficiently to render them susceptible to frost injury.

FERTILIZER BURN. The yellowing of leaf tips is a not unusual result of over-application of nitrate of soda, particularly in acid sandy soil. An unusual type of injury, however, was noted following the use of mixed fertilizer containing nitrogen, phosphorus and potash. The application was made in late summer to yearling nursery trees of marsh grapefruit which were particularly healthy and vigorous. Leaves which were not quite mature at the time of application developed a pattern of narrow rings of bleached tissue. Extensive bleached patches with small necrotic spots occurred on a few leaves.

BLUE MOULD (Penicillium spp.) Some blue mould particularly of navel oranges was noted in the metropolitan area in late Autumn, 1946. Infection followed fruit-fly stings.

GREASY SPOT (Cause unknown). Leaf spotting was observed on leaves of mandarins and oranges in the Wyong district, both on healthy and weak trees. No particular damage resulted.

WOOD ROT (Xylaria polymorpha). This fungus was observed causing a slow rotting of the wood of roots of a lemon tree at Kulnura. It did not appear likely to be of much consequence.

ROOT KNOT (Heterodera marioni). A very slight development of root knot was observed on trifoliata stocks planted in very heavily infested sandy soil at the Sydney Botanic Gardens.

POME FRUITS.

A particularly favourable season was experienced in all apple-growing districts of the State, resulting in the harvesting of extremely heavy crops of good quality fruit. Most districts experienced heavy winter rains and a fairly dry spring. Weather conditions did not favour the development of pathogenic diseases and losses from these were negligible.

Hot, dry conditions were experienced in Coastal Districts for short periods during the summer, which resulted in losses from scalding and water-core breakdown.

Drought conditions were less severe than in the 1944-45 season and caused very little loss of fruit.

APPLES.

BLACK SPOT (Venturia inaequalis) was not recorded in any orchard receiving control sprays, whilst the incidence on unsprayed trees was extremely low. Following fairly moist conditions, leaf infection appeared in some orchards in the Orange district, on trees which did not receive lime-sulphur cover sprays.

A little late spot developed on the fruit, especially of the later varieties, in the Orange district.

Experimental work designed to test the efficiency of a floor spray with regard to control of this disease is being continued, as also is the trial using standard spray strengths, as recommended by the Department and sprays of greater strengths.

DIE-BACKS again caused considerable losses. Investigations on this complex (see 1944-45 report for causes) are proceedings. A fungus, the imperfect stage of which is Dothiorella, is an active pathogen in Coastal and other districts. An active wood-rotting organism, (as yet unidentified) causes serious losses in young trees. It is introduced by a small wood-boring beetle (Scolytid) which attacks healthy trees.

McINTOSH RED TRUNK CANKER (Dothiorella sp.) was less active than last season, but again caused some losses. This disease is confined to the Oakdale district and is pathogenic on the McIntosh Red, and to a lesser extent, Jonathan and Carrington, varieties. The variety Granny Smith shows a well marked resistance to the organism.

Experimental work with a view to control of this disease is in progress.

LITTLE LEAF (Zinc deficiency) was recorded this season for the first time on apples in the county of Cumberland on deep white sands at Elderslie via Camden. Grapes growing adjacent to this orchard showed no apparent symptoms.

The disease was again common on untreated trees on the Murrumbidgee Irrigation Area.

CRINKEL occurred in many orchards in the Coastal districts following hot dry conditions in January.

INFECTIOUS VARIEGATION (Virus) was reported from the Coonabarabran district.

LEAF SCORCH (non parasitic) was fairly prevalent in the Camden-Oakdale and some inland districts, following conditions favouring excessive transpiration. The margins of all leaves were involved.

SUNSCALD (non parasitic) occurred on some trees in the Coastal areas following very hot, dry conditions during December and January.

PEAR.

FROST was responsible for heavy damage in the Packham's Triumph variety in the Orange district.

DIEBACKS (causes unknown) continued to cause losses in some areas, but this crop suffers less from these disorders than does the apple. No pathogenic organism has been isolated.

BLACK SPOT (Venturia pyrina) was recorded from the Wingham district only.

QUINCE.

Quinces arriving at the city markets have been in poor condition generally, internal breakdown being prevalent.

STONE FRUITS.

The 1945-46 season was very favourable for the growth of stone fruits and excellent crops were harvested throughout the State.

Losses from disease were very light except on the Murrumbidgee Irrigation Areas, where moist warm weather, with relatively frequent showers, occurred throughout the season. These conditions resulted in severe losses in many orchards from Brown Rot, and from splitting and spoilage. Shot hole inoculum has built up considerably during the year. Only a small incidence of rust was recorded, but it would appear that the inoculum of this disease is building up.

In Tableland and Coastal districts, a fairly wet winter was followed by a mild spring and summer, although a period of extremely hot weather during late December and early January caused some losses.

Bacterial canker (Pseudomonas cerasi var. prunicola) is now known to occur throughout the State and has caused heavy losses in apricot, cherry, peach, nectarine and plum. Investigations on this disease are being continued.

Dieback continued to be severe in most districts. Investigations which are proceeding on this complex have shown that Bacterial canker is responsible for a large proportion of dieback in most stone fruits. Other factors are also responsible but the causal agents have not been determined. A limb canker and gummosis which causes severe losses of limbs and whole trees, is widespread on trees over 15 years old. No pathogen has been found to be associated with this condition.

Frost caused blighting of blossoms of all stone fruits in many areas. Losses, however, were not large enough to affect the yield of harvested fruit, except with almonds, in which up to 80% loss of blossoms was recorded in the Young district.

ALMOND.

FROST caused severe losses in the almond crop in the Young district, where up to 80% loss of blossoms was recorded.

APRICOT.

BACTERIAL CANKER (Pseudomonas cerasi var. prunicola) was less severe than in previous years, although trees still continue to go out as a result of attack by this organism. Extensive investigation of this disease on apricot is continuing at Leeton.

BROWN ROT (Sclerotinia fructicola). Losses have been considerable on the Murrumbidgee Irrigation Area this season. Approximately 1-2% loss occurred in the Yanco area, there being

as high as 10% loss in some orchards. The high incidence of Brown Rot on the Area occurred following a warm, fairly moist early spring, which allowed a small increase of blossom blight. However, because of the dry conditions which prevailed during the late spring, inoculum did not build up sufficiently to cause very great infection in the apricot crop.

Elsewhere the disease was not serious, except for some losses in the suburban area.

SHOT-HOLE SCAB (Clasterosporium carpophilum) was fairly prevalent throughout the State on trees which had not received both leaf-fall and spur-burst sprays during the previous two seasons. Evidence again indicated that leaf-fall and spur-burst sprays of Bordeaux mixture are necessary, for at least two years, for satisfactory control on both apricot and peach. Winter, or spur-burst, application alone has not given control.

Heavy initial infection of apricot fruits on the Murrumbidgee Irrigation Areas resulted in little blemished fruit at harvest. Observations over several years indicate that in this district, the necrotic surface areas induced by the shot-hole fungus are not persistent, as in Tableland and Coastal areas, and usually flake off before harvest. This would appear to be associated with the hot dry conditions which prevail there prior to the harvesting period.

ZINC DEFICIENCY was recorded on the Murrumbidgee Irrigation Areas.

SPOILAGE of apricots and peaches resulted on the Murrumbidgee Irrigation Areas and other inland districts following heavy rain at maturity. Splitting of the fruit allowed entry of fermenting organisms.

Many fruits grew to such a large size that they pushed themselves off the spurs, causing not a little pre-harvest drop.

FRECKLE (Cladosporium carpophilum) caused no losses this season. Excellent control is obtained by the present Departmental recommendations.

CHERRY.

BACTERIAL CANKER (Pseudomonas cerasi var. prunicola) again caused severe losses in some orchards at Orange. The disease is being closely observed and it is hoped that experiments with a view to control will be established in the Orange district next year, when the results of the Leeton experiments with Apricot will be known.

BROWN ROT (Sclerotinia fructicola). Infection negligible. A demonstration plot at Orange using the present control measures recommended by the Department is being continued.

DROUGHT EFFECT. Only a light crop of cherries set in the Orange district. This was attributed to a large number of imperfect blossoms, resulting from retarded development of buds during the previous season when available soil moisture was lacking for a long period.

NECTARINE.

BROWN ROT (Sclerotinia fructicola) was very serious on the Murrumbidgee Irrigation Area, and also caused some losses in the Orange district.

LEAF CURL (Taphrina deformans) was not recorded on trees receiving a bud-swell fungicidal spray. Even on trees not receiving this spray, the incidence of leaf curl was extremely light.

FRECKLE (Cladosporium carpophilum) caused no losses this season. Excellent control is obtained by the present Departmental recommendations.

PEACH.

BROWN ROT (Sclerotinia fructicola). Losses due to Brown Rot were particularly severe on the Murrumbidgee Irrigation Areas. Losses of about 25% of the crop in the Yanco Area and of a lower amount in the Mirrool Area were sustained. Up to 40-45% loss occurred on some orchards in the former Area. After the middle of January, the season was continually wet and warm, and under these conditions, the disease rapidly built up from the existing inoculum to cause these heavy losses.

There is now, on many orchards, a large number of mummified fruits both on the ground and on the trees. As well, many laterals have died and infection of limbs has resulted in the formation of many cankers. The position is one which suggests every possibility of a high incidence of blossom infection in the spring. Consequently, together with Horticultural and Entomological officers on the Irrigation Area, a programme of control measures has been drafted. This programme is a compromise between ideal measures for brown rot control and necessary cultural operations.

Only slight infection was experienced in other districts.

CROWN GALL (Agrobacterium tumefaciens). Severe infection (40-50%) was reported from a nursery in the Metropolitan Area.

SHOT-HOLE SCAB (Clasterosporium carpophilum). The remarks for Apricot apply also to Peach, except that fruit infection, in the latter case, resulted in the production of a sunken superficial gum spot and blemish which remained on the fruit at harvest.

RUST (Puccinia pruni-spinosae) was again prevalent on leaves of peach trees during autumn in the Coastal districts and caused some losses of fruit on the Murrumbidgee Irrigation Areas, where the incidence of both fruit and leaf infection was more severe than for the past few seasons.

ZINC DEFICIENCY was recorded on the Murrumbidgee Irrigation Area and was also found at Wedderburn and on the Central Western Slopes.

MANGANESE DEFICIENCY, causing a chlorosis of the margins and areas between the main secondary veins of peach leaves, was again common on the Wianamatta Shale soils and on some of the sandy soils in the County of Cumberland. Present observations indicate that annual applications of a spray of 25lb. manganese sulphate per 100 gallons water are required, in the dormant stage, to prevent re-appearance of this chlorosis.

ROOT ROT (Armillaria mellea) was recorded from Carlingford.

LEAF CURL (Taphrina deformans) was not recorded on trees receiving a bud-swell fungicidal spray. Even on trees which did not receive this spray, the incidence of leaf curl was extremely low.

SPOILAGE (see Apricot).

FRECKLE (Cladosporium carpophilum) caused no losses this season. Excellent control is obtained by the present Departmental recommendations.

PLUM.

RUST (Puccinia pruni-sponosae) was fairly widespread and was particularly prevalent on European Plums during the autumn in the Orange district.

TROPICAL FRUITS.

AVOCADO.

No records.

BANANA.

BUNCHY TOP (Virus). Statistics of the Division of Horticulture show that, in the main districts, a high degree of control of this disease was again maintained. For the small Yarrahappini district, where a campaign of eradication has been operating and where there had been no record of Bunchy Top since 2/12/'42, a fresh outbreak occurred. The origin of this outbreak is uncertain, but as it occurred in the proximity of an earlier outbreak, a relationship with a dormant infected bud is suspected.

LEAF SPOT (Cercospora musae) was again widespread but not unusually destructive. Very few growers, so far, have adopted spraying as a control for this disease, but more will probably install spray lines now that the war is over. Good control was again obtained at the Experimental Plots at Duranbah by the application of four sprays at monthly intervals.

ROOT AND CORM ROT (Rhizoctonia solani and Pythium sp. associated).

During April and May there were several reports of severe root rot, sometimes associated with a discolouration of the corm, from Lillian Rock, Barker's Vale, and Duranbah. The late Summer had been very wet.

SQUIRTER (Nigrospora sphaerica). This disease was again common on the Melbourne and Adelaide Markets during the Winter months. Adoption of the salicylanilide dip method of control is still slow, in spite of its effectiveness.

MANGO.

No records.

PAPAW.

CRINKLE (Virus) was again prevalent in most plantings.

PASSIONFRUIT.

WOODINESS (Virus). This disease, by shortening the life of the vines, is still a limiting factor in production.

STATISTICS OF THE NEW SOUTH WALES BUNCHY TOP CONTROL CAMPAIGN FOR 1945-46.

YEAR ENDED	ACTUAL ACREAGE	ACREAGE INSPECTED	PROGRESSIVE ACREAGE INSPECTED	BUNCHY TOP FOUND	PROGRESSIVE BUNCHY TOP FOUND	AV. B.T. PER AC. ACTUAL	AV. B.T. PER AC. INSP.
			WHOLE OF STATE.				
30/6/46	21663	68935	640288	5144	137325	.24	.07
			TWEED DISTRICT.				
"	6489	28750	319504	3421	96545	.53	.12
			BRUNSWICK DISTRICT.				
"	5681	27798	194764	898	19430	.15	.03
			RICHMOND DISTRICT.				
"	4092	11880	127986	825	42315	.20	.07

MARGINAL SCORCH (K. deficiency). Deficiency of Potash manifested itself during the war years in passionfruit vines by a marginal scorching and leaf-fall of older leaves of the newer canes, the symptoms being most pronounced as the crop commenced to mature. Analyses revealed low K. and application of 2 lbs. of sulphate of potash per vine greatly improved the vines. Nitrogenous fertilizers had been used where symptoms of K. deficiency appeared, and the soils were sandy and had been previously cropped to crucifers and other vegetable crops.

PINEAPPLE.

WILT (Rhizoctonia sp. and Fusarium sp. associated). Following heavy rains in the late Summer, a wilt disease was observed in plantations at Duranbah.

SUNSCALD. Heat wave conditions prevailed at the end of March, and most fruit was badly sunscalded in the Tweed district.

MISCELLANEOUS FRUITS.

FIG.

BROWN LEAF SPOT (Phyllosticta sycophylla) was again recorded from an orchard of Black Genoa figs at Canley Vale.

GRAPE.

BLACK SPOT (Elsinoe ampelina). Because of dry conditions during spring and early summer, the number of cases of this disease reported was smaller than for some years past.

DOWNY MILDEW (Plasmopora viticola) was of minor importance during the spring and early summer. Early autumn rains, however, encouraged considerable late growth of canes and both in the M.I.A. and coastal districts, downy mildew developed rapidly and caused defoliation.

POWDERY MILDEW (Uncinula necator) was noted causing leaf and fruit injury in the Metropolitan area.

SALT INJURY. A number of vineyards in irrigation districts along the lower Murray experienced considerable injury from salt (see citrus).

FRUIT ROT (excessive rain). Fairly heavy falls of rain were received along the lower Murray River in January and February and harvesting and drying of currant and sultana crops was affected. Considerable splitting and moulding of fruit occurred. Heavy rain in the M.I.A. in February caused splitting and moulding of wine grapes.

ROOT KNOT (Heterodera marioni). Much of the lighter soil in the irrigated settlements of the lower Murray River is infested with this organism and sultana vines are commonly seriously attacked. The infection is a perennial one, becoming so deeply embedded in the tissue of the permanent roots that it is not thrown off in the production of bark. Feeding fibre roots which form in the late winter and are mature in the late spring are usually infected. The temperatures during the spring months, 1945, were cooler than average. This is probably the reason for the relatively very slight degree of infection which occurred on the feeding fibre of sultana vines in a Coomealla vineyard which, in previous years, showed very heavy infection and poor cane growth and cropping. In consequence of the light infection, this spring growth and yield approached that of uninfected vines.

SCALD. Dry conditions in summer resulted in leaf scalding of Black Muscat grapes in some vineyards at Canley Vale where irrigation was not possible. The fruit from these vines failed to mature satisfactorily.

LOQUAT.

No records.

STRAWBERRY.

CRINKLE (virus). Crinkle was found to have spread through the stock beds of the Department's variety, Richmond Red, which had hitherto been free of the disease. An attempt is being made by Horticultural and Biological Branch officers to build up fresh stocks from selected plants under strict quarantine at Narara Viticultural Nursery.

WILT (Rhizoctonia solani). During the early spring of 1945, a survey of strawberry plantings in the Pendle Hill, Wentworthville, Carlingford, West Pennant Hills and Liverpool districts revealed that wilt had caused very considerable losses. In some beds, 100% of plants had collapsed. Many plants had died right out and no spring crop was harvested. The disease was not restricted to 2 year old beds. A number of new beds planted out from sources found to be infected showed equally high losses. With the exception of the variety King Edward which appeared to show a high degree of tolerance, all varieties proved susceptible. Traces of the disease were found in a crop at Cowra. Later in the season, as temperatures rose, a proportion of the plants made a degree of recovery, and some new leaves were produced. The temperature relations of the disease are under investigation.

LEAF DISEASES. SPOT (Mycosphaerella fragariae), SCORCH (Diplocarpon earliana) and BLIGHT (Dendrophoma obscurans) were of minor importance in the Spring and early Summer. Some blight developed in Metropolitan areas, particularly on Richmond Red during the Autumn. A particularly heavy outbreak of scorch occurred on King Edward in a Mount Pritchard nursery, following wet autumn conditions.

WALNUT.

No records.

MULBERRY.

BACTERIAL BLIGHT (Pseudomonas mori) was reported from the Young District.

ORNAMENTALS.

ADIANTUM.

LEAF SPOT (Gloeosporium sp.) was recorded for the first time in N.S.W. on this host in the Metropolitan Area. Leaf spots were produced under rather moist conditions in spring.

ANEMONE.

CROWN ROT (Sclerotium rolfsii) was recorded for the first time in this State causing death of Anemone japonica in the Metropolitan Area.

ANTIRRHINUM.

DOWNY MILDEW (Peronospora antirrhini) occurred in a number of metropolitan nurseries causing heavy losses.

COLLAR ROT (Phytophthora sp.) was noted causing about 30% loss of plants in a commercial crop at Sutherland in early summer. The land had been kept fairly dry. Losses were also experienced by home gardeners in the metropolitan area during the spring and summer.

ANTHRACNOSE (Colletotrichum antirrhini) was recorded from a number of districts in the autumn.

ASTER.

ROOT ROT (Phytophthora (?parasitica)) caused 70% loss of Giant Crego and American Beauty asters in a commercial crop in the Metropolitan area in early autumn. A root rot of seedlings caused by Phythium sp. was noted in commercial seed beds in late spring. The plants were hard, dwarfed and yellow, the small roots being invaded and killed as they were produced.

SPOTTED WILT (virus) was less damaging than usual in autumn crops.

SCLEROTINIA STEM ROT (Sclerotinia sclerotiorum) caused considerable loss in a late autumn crop at Blacktown.

AZALEA.

CHLOROSIS (Iron deficiency) was observed in a metropolitan nursery. The soil was found to be too alkaline (pH 6.6) for the healthy growth of azaleas.

TUBEROUS BEGONIA.

SPOTTED WILT (virus). Tubers of begonias which in the previous season had shown leaf rolling development of brown corky lines on the leaf undersurface and had failed to flower were treated in hot water 48-50°C for 15 minutes. The treatment was carried out by a metropolitan grower, following advice from the Biological Branch and effected a complete cure.

CACTUS sp. and EUPHORBIA sp.

SPOT (Cercospora sp.). Small ornamental cacti and fleshy cactus-like Euphorbias were noted affected with a stem spot, apparently due in both cases to the same parasite.

CAMELLIA.

CANKER (Glomerella cingulata) caused loss of young plants in a metropolitan nursery.

CARNATION.

COLLAR ROT (Rhizoctonia solani) was very prevalent in commercial and home gardens in the Metropolitan area during the spring and summer.

RUST & LEAF SPOT (Uromyces caryophyllinus and Septoria dianthi) were prevalent during late summer and autumn.

MOSAIC (Spotted wilt virus). Reports from commercial growers indicate that mosaic is becoming increasingly important.

CHRYSANTHEMUM.

RUST & LEAF SPOT (Puccinia chrysanthemi and Cylindrosporium chrysanthemi). These diseases were prevalent during the autumn and caused considerable damage to foliage.

EELWORM DISEASE (Aphelenchoides ritzema-bosi) was recorded in several commercial crops causing complete failure.

CINERARIA.

ROOT ROT (Rhizoctonia solani) was responsible for losses of boxed seedlings in a metropolitan nursery in late summer.

CYMBIDIUM.

BLACK SPOT AND MOSAIC (?Tomato spotted wilt) continues to be the most serious disease of these orchids in N.S.W.

ROOT AND BULB ROT (cause not known) was reported by several growers. It is said to be associated with overwatering and lack of aeration. The foliage symptoms are slow to develop after the root injury takes place.

DAFFODIL.

BULK EELWORM (Anguillulina dipsaci) was recorded from Gosford.

BASAL ROT (Fusarium bulbigenum) caused heavy losses in a consignment of bulbs of King Alfred from Victoria.

DAHLIA.

SPOTTED WILT (virus) was almost universally present in commercial varieties.

POWDERY MILDEW (Oidium sp.) was of no importance this season.

DAPHNE.

COLLAR ROT (Phytophthora sp.) was recorded for the first time in N.S.W. from a metropolitan garden.

DELPHINIUM.

CROWN ROT (Sclerotium rolfsii) caused severe losses in a commercial crop at North Ryde.

GERBERA.

CROWN ROT (Phytophthora sp.) caused considerable mortality amongst gerberas during the early spring both in commercial and home gardens, in the Bankstown, Kogarah and Rockdale districts.

LEAF SPOT (Cercospora sp.) was general during autumn and winter.

GLADIOLUS.

NECK ROT (Sclerotinia gladioli) was recorded for the first time in N.S.W. causing considerable loss in a commercial crop in the metropolitan area in summer. The plants were attacked just prior to blossoming. In the autumn, very considerable damage was done to a commercial crop in the Robertson district. The incidence of infection was higher in the later planted part of the crop which had grown during the wet conditions of autumn than in the early planted section which had been grown under dry conditions. The parasite was noted spreading actively through the soil from plant to plant along the rows.

BOTRYTIS CORM ROT (Botrytis cinerea) caused considerable loss among stored corms at Robertson, Armidale and Wentworth Falls. Wet conditions at the time of digging favoured the development of the disease.

FUSARIUM CORM ROT (Fusarium sp.). Losses of 50-80% were reported among stored corms in the North Ryde, West Pennant Hills and Carlingford districts.

HARD ROT (Septoria gladicli) was noted causing losses of about 60% and 5% at North Ryde and Wyong. Leaf spotting was noted in crops in the Robertson district.

SCAB (Pseudomonas marginata) was general but of minor importance.

RHIZOCTONIA NECK ROT (Rhizoctonia solani). Rhizoctonia was found attacking the neck region of young plants of the Picardy variety grown from cormels at Robertson. The disease caused the premature drying out of the foliage, but the new corms though small were not attacked.

HONESTY.

CROWN & ROOT ROT (Phytophthora sp.) was reported for the first time from a metropolitan garden.

HOYA CARNOSA.

SPOTTED WILT (virus) was recorded for the first time on this host from a metropolitan garden.

HYACINTH (Roman).

ROT (Sclerotium rolfsii) was recorded for the first time on this host from a commercial crop at North Ryde.

LARKSPUR.

BACTERIAL SPOT (Pseudomonas delphinii) was recorded causing about 15% loss in a commercial crop at Ryde.

LILY.

BULB ROT (Rhizoctonia solani) was recorded in metropolitan gardens during the late spring. Affected plants yellowed and died as the result of decay of bulb scales and roots.

MARIGOLD.

COLLAR ROT (Phytophthora cryptogea) caused a loss of about 20% of a commercial crop of marigolds in the metropolitan area during the early spring. The plants had been heavily watered.

OLEANDER.

GALL (Pseudomonas savastanoi) was recorded from Quirindi.

SWEET PEA.

ROOT ROT (Pythium sp.) was noted from a number of metropolitan gardens following autumn rains.

PANSY.

ROOT ROT (Pythium sp.) was observed attacking exhibition Pansies in the metropolitan area. The plants which had been heavily fertilized with nitrogen collapsed at the commencement of warm weather. Root rot of seedlings due to Rhizoctonia solani caused loss in a metropolitan nursery.

PEACH (FLOWERING).

LEAF CURL (Taphrina deformans) occurred in metropolitan and tableland gardens in early spring.

LEAF MOTTLE (zinc deficiency) was recorded from Wee Waa.

PHLOX.

LEAF SPOT (Septoria divaricata) was noted causing serious damage to seedlings of Phlox drummondii in heated glasshouses during the late winter.

COLLAR ROT (Phytophthora parasitica) caused 80% mortality of perennial phlox in a metropolitan garden during the summer. The beds had been heavily watered.

WILT (Verticillium dahliae) was recorded on perennial phlox for the first time from a metropolitan garden. Leaves of affected plants died gradually from the base upward and flowering was prevented. New shoots were formed from the rootstock during the winter and at first made satisfactory growth.

POPPY (ICELAND).

SPOTTED WILT (virus) caused losses ranging from 2 to 60% in crops in the metropolitan area, at Kiama and Gosford.

ROOT ROT (Rhizoctonia solani) was responsible for losses of seedlings in a metropolitan nursery during late summer.

PRIMROSE.

LEAF SPOT (Ramularia primulae) was responsible for considerable loss of leaves and weakening of plants at Emmaville and was noted at North Ryde and Oberon, though not causing significant damage. The disease appears to develop most strongly under cool wet conditions.

PRIMULA.

ROOT ROT (Rhizoctonia solani) caused losses of seedlings in a metropolitan nursery.

RANUNCULUS.

ROOT ROT (Pythium sp.). Following autumn and winter rains ranunculi in rather heavy soil at Carlingford were affected with root rot just as they were commencing to flower. Most of the older roots were rotting back from the tips and younger roots were also becoming affected.

SPOTTED WILT (virus) was very prevalent among plants grown from roots imported from Victoria.

ROSE.

BLACK SPOT & POWDERY MILDEW (Diplocarpon rosae and Sphaerotheca pannosa) were of minor importance in coastal areas in the spring and summer months. During the moist weather of autumn, Black Spot became fairly prevalent and caused some premature defoliation.

ROOT KNOT (Heterodera marioni). Eelworm infection was found to be serious in several metropolitan nurseries.

ANTHRACNOSE (Sphaceloma rosarum). A slight development occurred on susceptible varieties during cool weather of late autumn.

RUST (Phragmidium sp.) was recorded on susceptible varieties from several metropolitan nurseries.

STOCK.

BLACK ROT (Xanthomonas incanae) was again the most serious disease of stocks in this State. Early sown crops were particularly affected and losses of up to 100% were reported.

MOSAIC (virus) was recorded in a number of commercial crops in metropolitan and country districts.

ROOT ROT (Pythium sp.) was recorded following wet conditions in Winter 1945 in a commercial crop on heavy soil at Carlingford.

STEM ROT (Sclerotinia sclerotiorum) was recorded from Jerilderie.

VERONICA.

LEAF SPOT (Septoria sp.) was recorded from Termeil (South Coast).

VIOLET.

ROOT & CROWN ROT (Rhizoctonia solani) was found to be responsible for the death of plants of the variety Princess of Wales in home gardens at Canley Vale and in the Metropolitan Area, in late Spring and summer.

SCAB (Sphaceloma violae) was noted in metropolitan crops following autumn rain.

ZINNIA.

SPOTTED WILT (virus) caused 50% loss of plants in an early summer crop at Fairfield. Infection of light to moderate intensity was noted in commercial crops and home gardens throughout the metropolitan area.

COLLAR ROT (Rhizoctonia solani) caused losses in home gardens in the Metropolitan area during early summer.

POWDERY MILDEW (Oidium sp.) was unimportant.

VEGETABLES.

BEANS.

BACTERIAL DISEASES. HALO BLIGHT (Pseudomonas medicaginis var. phaseolicola) was responsible for serious crop losses in Wellington Wonder seed and green bean crops on the South Coast, some South Coast Canadian Wonder crops and in some crops of the refugee (stringless) type grown for canning on the Murrumbidgee Irrigation Area. Severe infection was also recorded in some Brown Beauty crops in the Sydney Metropolitan Area and in the County of Cumberland. Dry conditions in August and September, 1945, together with the use of good quality seed were responsible for a low incidence of this disease in bean crops in the Gosford (Central Coast) District in the spring of 1945.

The variety Hawkesbury Wonder continues to show excellent field resistance to halo blight, but, owing to the fact that its pod type and quality do not satisfy market requirements as well as

those of Brown Beauty, it appears that the acreage planted with Hawkesbury Wonder will never be very great.

The seed certification scheme introduced mainly for the purpose of controlling halo blight was continued during 1945-46, the third successive year of operation of the scheme. Over 1200 acres were inspected and 222 acres were passed for certification. As a result it is expected that about 2,900 bushels of dressed seed will be certified. Of this quantity about 55% will be Brown Beauty, 38% Hawkesbury Wonder and the remaining 7% will comprise Tweed Wonder, Wellington Wonder and Canadian Wonder.

AMERICAN COMMON BLIGHT (Xanthomonas phaseoli) was present in all commercial crops of Epicures grown for seed in New South Wales during the past season, infection ranging from 10 to 100%. It was also recorded in crops of Tweed Wonder, Brown Beauty and Clarendon Wonder grown for seed but, except in one crop of Brown Beauty, infection was light. Both typical Xanthomonas phaseoli and cultures resembling X. phaseoli var. fuscans were isolated from a crop grown on the Murrumbidgee Irrigation Area. This is the first record of X. phaseoli var. fuscans in this State.

BACTERIAL BROWN SPOT (Pseudomonas syringae) was recorded from many bean crops throughout the State but in no case was the disease responsible for death of the plants.

MOSAIC (virus) was present in practically all crops. As in the 1944-45 season, mosaic infection was very much higher in early sown than in later-sown crops. In crops inspected on the South Coast during December, 1945, infection ranged from 10 to 20% at Araluen, 5 to 10% at Moruya, with one crop showing 70% at Wandandian (about 20 miles south of Nowra). At the same time, infection in crops south of Moruya was 1 to 2% or less. During February and March, 1946, most seed crops on the South Coast showed less than 1% infection with mosaic, irrespective of location. Field observations indicate that in the case of the "green puckered" type of mosaic, most of the infected plants in a moderately or severely diseased crop become infected as a result of secondary spread of the disease by means of aphids and other insects. For this reason, there is usually no correlation between seed origin and amount of mosaic in a crop. This statement does not apply to another type of mosaic provisionally designated as "yellow dwarf mosaic" where there is a good correlation between seed origin and amount of disease. This latter condition was of importance only in certain lines of Tweed Wonder and Canadian Wonder.

FUNGAL ROOT AND STEM ROTS AND WILTS. During the past year, there were many records of this type of disease in beans particularly in some lines of the variety Canadian Wonder. ASHY STEM BLIGHT (Macrophomina phaseoli), RHIZOCTONIA ROOT ROT (Rhizoctonia solani), DRY ROOT ROT (Fusarium solani f. phaseoli) and possibly FUSARIUM YELLOWS (Fusarium oxysporum f. phaseoli) were the main diseases concerned. High temperatures were associated with almost all the cases of severe infection observed. In addition to the above diseases, SCLEROTIUM ROT (Sclerotium rolfsii) was recorded from Gosford and Grafton (North Coast) and SCLEROTINIA ROT (Sclerotinia sclerotiorum) from the Gosford district.

ROOT ROT (Heterodera marioni). Several records from the Sydney Metropolitan Area and the Gosford district.

STEM EELWORM (Ditylenchus dipsaci). Surveys during the past year have failed to locate this disease on any farms at Matcham in the Gosford district, other than the four farms on which it has already been found. Two infested areas which had not been planted with beans for two and four years respectively were sown with beans in the spring months of 1945. Trace infection occurred in both crops, but loss was practically negligible. The evidence suggests that there is some yet undiscovered weed host of the eelworm which serves to carry over the parasite.

RUST (Uromyces phaseoli typica) was present in most crops of Epicure and other climbing varieties in the Sydney Metropolitan Area. The disease was not observed in seed crops of Epicure on the South Coast and the Murrumbidgee Irrigation Area.

ANGULAR LEAF SPOT (Isariopsis griseola) was again of common occurrence in bean crops, affecting both leaves and pods. No cases of really serious losses were reported as the disease is usually present only on mature plants. In South Coast seed crops, it was most prevalent towards the end of the season in March. Although circumstantial evidence suggests that this disease is seed-borne, field observations have so far failed to show any good correlation between the date of appearance of disease and amount of this disease in a crop on the one hand and the amount of disease in the crop from which the seed was secured in the previous season, on the other hand.

ANTHRACNOSE (Colletotrichum lindemuthianum). There were only three records of this disease during the past year. All of these were on seed crops on the South Coast - two at Moruya and one at Kiah.

ALTERNARIA SPOT (Alternaria sp.) was again of common occurrence in South Coast seed crops which were ripening off but was of little economic importance.

SCALD (non-parasitic). Recorded from the Gosford district on beans grown from seed produced in the same district.

WITCHES BROOM (virus). One record from Coolah (Central Tablelands) on Epicures.

FAILURE OF BEAN PODS TO SET (non-parasitic). Several reports of failure of beans to set pods were received during January and February, 1946. This was apparently associated with hot weather at flowering time.

POWDERY MILDEW (Erysiphe polygoni) was recorded on Scarlet Runner bean in the Sydney Metropolitan Area.

NAVY BEAN.

AMERICAN COMMON BLIGHT (Xanthomonas phaseoli) was present in all crops of navy beans. At present, there appears to be no line of navy bean seed in this State free from this disease.

ROOT AND STEM ROTS AND WILTS (Macrophomina phaseoli, Rhizoctonia solani and Fusarium spp.). Reports from the Northern Tablelands indicated that there were serious losses from these diseases in crops sown early in the season. Later-sown crops were not so severely affected. Losses were experienced in December-sown crops on the Murrumbidgee Irrigation area whereas navy beans planted in January and early February were not affected.

BROAD BEAN.

CHOCOLATE SPOT (Botrytis cinerea). One record of 100% infection in the Gosford (Central Coast) district.

RUST (Uromyces fabae). Recorded from the Sydney Metropolitan Area and from Bowral (Southern Highlands.)

MOSAIC (virus). One crop inspected at Gosford in which infection of the order of 20% to 35% was observed. Affected plants appeared to set less pods than healthy plants.

RHIZOCTONIA ROOT ROT (Rhizoctonia solani). One record from Picton (Southern Highlands).

SPOTTED WILT (virus). Several records but no reports of severe losses in broad beans.

BEET AND SILVER BEET.

CERCOSPORA LEAF SPOT (Cercospora beticcla) was, as usual, of widespread occurrence on silver beet and was responsible for appreciable losses; especially in the Sydney Metropolitan Area.

DAMPING OFF AND WILT (Aphanomyces sp.). This disease was again responsible for losses in beet crops in the Sydney Metropolitan Area during the warmer months of the year.

SCLEROTIUM ROT (Sclerotium rolfsii) was recorded on red beet in the Singleton and Port Macquarie (Lower North Coast) districts where it was responsible for serious crop losses.

ROOT ROTS (Rhizoctonia solani and Fusarium sp.). A rotting of the roots of red beet was recorded from Leeton. A species of Fusarium and the fungus Rhizoctonia solani (Corticum vagum) were found associated.

DAMPING OFF (Phoma betae) was recorded from the Sydney Metropolitan Area.

CARROT.

CARROT VIRUS. This disease was again widespread - one record of 100% infection at Bathurst (Central Tablelands).

CORE BREAKDOWN (Cause undetermined). This condition occurred in carrots grown at Bowraville and Valla (North Coast) for the Commonwealth Food Control. It was a source of trouble in canned carrots. No definite correlation could be found between the condition and cultural practices or soil types.

ROOT KNOT (Heterodera marioni). Recorded from the Sydney Metropolitan Area.

CERCOSPORA LEAF SPOT (Cercospora apii carotae) was recorded from Grafton (North Coast).

CELERY.

LATE BLIGHT (Septoria apii graveolentis). Several records of severe infection - from the Sydney Metropolitan Area and from Wyong (Central Coast).

RHIZOCTONIA CROWN ROT (Rhizoctonia solani) was recorded from the Sydney Metropolitan Area.

CRUCIFERS.

BLACK ROT (Xanthomonas campestris). Severe losses were caused in commercial crops of cauliflower in the Bathurst (Central Tablelands) district during the autumn of 1946. There were also several records of severe losses, as a result of this disease, in the Sydney Metropolitan Area and elsewhere on the Central Coast, mainly on cauliflower but also on cabbage.

WIRESTEM (Rhizoctonia solani). Several records from various parts of the State.

DOWNY MILDEW (Peronospora parasitica). Several records mainly on cabbages in seed beds but also recorded on cauliflower and broccoli.

CLUB ROOT (Plasmodiophora brassicae). Several records from the Sydney Metropolitan Area.

SCLEROTINIA ROT (Sclerotinia sclerotiorum). One record on cabbages at Bathurst (Central Tablelands). A line of radish seed infested with sclerotia was intercepted after importation from New Zealand. It was recommended that the seed be destroyed or returned to the country of origin.

BLACK ROOT OF RADISH (Aphanomyces raphani). One record from Grafton (North Coast).

MOSAIC (virus). Recorded from Bathurst (Central Tablelands) on both cabbage and cauliflower.

CERCOSPORA LEAF SPOT (Cercospora sp.) was recorded on swede turnips at Matcham in the Gosford (Central Coast) district.

RING SPOT (Mycosphaerella brassicicola) was recorded on cabbage at Bathurst (Central Tablelands).

FROST INJURY. Severe frost injury, followed by bacterial soft rot, was recorded on cabbages grown for seed at Bathurst.

POTASH DEFICIENCY (non-parasitic). One record of suspected potash deficiency from the Moss Vale (southern Highlands) district.

CUCURBITS.

POWDERY MILDEW (Erysiphe cichoracearum) was, as usual, of widespread occurrence in pumpkin, marrow, squash, rockmelon and cucumber crops.

DOWNY MILDEW (Peronoplasmopora cubensis). Several records from the Sydney Metropolitan Area on rockmelons and cucumbers. All rockmelon and cucumber seed crops in the Moruya and Bodalla (South Coast) area were severely affected with this disease.

"YELLOWS" DISEASE (Cause undetermined). A condition of rockmelons in which the vines were yellowed and somewhat stunted was recorded from several farms in the outer Sydney Metropolitan Area. Sporadic distribution of the disease throughout the crops was suggestive of a virus disease.

"SCALD" (Cause undetermined). A condition of white bush marrows in which most of the plants showed a yellowish-green rather than a dark green colour with a burning of the margins and interveinal areas of the leaves was recorded from the Gosford (Central Coast) district. Magnesium deficiency suspected.

FAILURE TO SET FRUITS (non-parasitic). During the past year, there were many reports of failure of cucurbits to set fruits, particularly in the case of pumpkins in the Sydney Metropolitan Area. In some cases, the condition appeared to be due to hot weather at flowering, in others to absence of bees or other insects to effect pollination.

FASCIATION (non-parasitic). Recorded from Canberra.

LETTUCE.

SPOTTED WILT (virus). Many records from the Sydney Metropolitan Area especially during the spring months of 1945 when some severe losses were reported.

DOWNY MILDEW (Bremia lactucae). Several records.

MUSHROOM.

No diseases recorded.

WEED FUNGI. BROWN PLASTER MOULD (Papulaspora byssina). There were several records of this "weed fungus". According to one commercial spawn maker there was a correlation between the occurrence of this trouble and the use of straw from one particular source. There was one record of a species of Peziza in a compost which had apparently not heated up sufficiently.

ONION.

DOWNY MILDEW (Peronospora destructor). Several records from the Sydney Metropolitan Area.

PARSLEY.

No records.

PARSNIP.

PHYLLACHORA LEAF SPOT (Phyllachora pastinacae) was recorded from the Sydney Metropolitan Area and from Bombala (Southern Tablelands).

ROOT KNOT (Heterodera marioni). Recorded from Cobbity (Southern Highlands) and from the Sydney Metropolitan Area.

PEA.

POD AND LEAF SPOT DISEASES (Mycosphaerella pinodes, Ascochyta pisi and Ascochyta pinodella) were again responsible for serious losses in coastal-grown pea crops especially the disease caused by Mycosphaerella pinodes. A field survey of canning crops at Cowra (Central Western Slopes) and at Leeton (Murrumbidgee Irrigation Area) showed that most of these crops showed only trace infection with these diseases. In some seed crops of Massey and Greenfeast, grown at Cowra for the Vegetable Seeds Committee, infection ranged up to one hundred per cent. In most of these seed crops, however, bacterial blight was of more importance.

BACTERIAL BLIGHT (Pseudomonas pisi). Severe losses occurred in several seed crops of the Massey variety grown in the Cowra district. Wet weather during the spring months of 1945 was apparently responsible for a rapid spread of the disease resulting in large patches of dead plants throughout the crops. The disease also occurred at Cowra in Greenfeast seed crops and in some canning crops of Canners Perfection but was of very much less importance than in Massey seed crops. Trace infection only was seen in canning crops on the Murrumbidgee Irrigation Area.

ROOT ROTS AND WILTS (Fusarium sp. and Rhizoctonia solani). Several records from the Central and North Coast but no reports of any serious crop losses.

SEPTORIA SPOT (Septoria pisi). Recorded in seed and canning crops at Cowra but of no great economic importance.

DOWNY MILDEW (Peronospora viciae). Most crops on the Murrumbidgee Irrigation Area in the spring months of 1945 showed infection with downy mildew. The disease did not, however, appear to be responsible for any serious reductions in yield.

MOSAIC (virus). Recorded in canning crops of Canners' Perfection at Cowra. Infection ranged up to about ten per cent.

POWDERY MILDEW (Erysiphe polygoni). Appeared to be absent from all canning and seed crops at Cowra and on the Murrumbidgee Irrigation Area. Several records from coastal districts.

MARSH SPOT (Manganese deficiency). Pea seed imported from Tasmania in the last year showed symptoms suggestive of marsh spot. A similar condition was previously recorded on New Zealand pea seed in August, 1944, but it has not yet been observed in any pea seed grown in New South Wales.

POTATO.

VIRUS DISEASES. LEAF ROLL, MOSAIC AND WITCHES BROOM were, as usual, of widespread occurrence. The potato certification scheme continues to give effective control of these diseases. SPOTTED WILT appears to be increasing in prevalence and was particularly widespread in the Bannister (Southern Tablelands) district, where 44%, of a total of 650 acres submitted for certification, were rejected because of the presence of this disease.

RHIZOCTONIA DISEASE (Rhizoctonia solani) was again widespread.

SCAB (Actinomyces scabies) was present in most crops. Severe losses were reported from Guyra (Northern Tablelands).

LATE BLIGHT (Phytophthora infestans). The only records of this disease during the past year were on a consignment of tubers imported from Victoria and in a crop grown at Tyringham (Northern Tablelands) in the Autumn of 1946.

EELWORM (Heterodera marioni). Reports from Ebor (Northern Tablelands) indicate that eelworm was present in many crops in this area. It was also reported from Taralga (Southern Tablelands).

TARGET SPOT (Alternaria solani). This disease was present in practically all Tableland potato crops inspected. Infection ranged from a trace, up to 100%.

FUSARIUM WILTS AND TUBER ROTS (Fusarium spp.) were again widespread but no cases of severe losses were recorded. The evidence available indicates that the low tolerance allowed for these diseases in the certification scheme is responsible for reducing losses from Fusarium wilt.

BROWN ROT (Bacterium solanacearum). One record from Toongabbie (County of Cumberland).

RHUBARB.

PHYTOPHTHORA ROOT AND CROWN ROT (Phytophthora sp.), One record from Wyong (Central Coast).

TOMATO.

SPOTTED WILT (virus). Most early and midseason crops were attacked by the spotted wilt virus in city and urban areas, though the incidence was sometimes low in more isolated plantings. In a Departmental experiment plot in the city (Sydney) 80% of unsprayed (tartar emetic) plants were infested. Late crops escaped serious losses.

FUSARIUM WILT (Fusarium oxysporum f. lycopersici) was the most common disease of tomatoes in N.S.W. this year. Specimens and reports of Fusarium wilt were received from all tomato growing areas including glass-houses where steam sterilization of the soil had been practised. In many instances, field inspection of the growing crop indicated infection, ranging from 25 to 50%, though the reduction in yield of infected crops was less than this figure. Many infected plants attained cropping maturity but others wilted and died rapidly, following the heavy rains which were a feature of the season.

EARLY BLIGHT (Alternaria solani). This disease was present in practically all commercial crops of midseason and late varieties and in many cases attacked the calyx end of the fruit. Severity varied from light infection to severe defoliation and appeared to be greatest in unsprayed or irregularly sprayed crops. "Flare up" usually occurred when rain was followed by dull days.

BACTERIAL SPOT (Xanthomonas vesicatoria). Bacterial spot was again prevalent on the North Coast where plants were severely attacked. It is probable that soil carry-over is taking place. In some instances, infected seed appears to have been the source of infection. Minor outbreaks were observed in the County of Cumberland but were less severe and were masked to a greater extent on properties where weekly applications of copper sprays were routine practice.

Complete defoliation of Autumn crops was reported from the Gosford district following heavy rains accompanied by driving winds. The varieties chiefly affected were Rouge de Marmande and Break o' Day.

ROOT KNOT (Heterodera marioni) has been rather more common in tomatoes this year. Weather conditions have favoured the activities of the parasite which has been reported in heavy clay soils almost as frequently as in the sandy types. Distribution has been State wide though commercial crops have escaped injury to a greater extent than many home-garden plantings.

Seedlings from commercial nurseries have been reported as a source of infestation.

BACTERIAL CANKER (Corynebacterium michiganense). Probably owing to the almost universal adoption of the acetic acid seed dip, bacterial canker has again been of rare occurrence. Only two specimens have been received during the year and both of these came from the Western portion of the State.

BACTERIAL WILT (Bacterium solanacearum). Few specimens or reports of this disease were received during the year. Minor losses were observed in the Hornsby and Baulkham Hills districts of the County of Cumberland. In general continual rotational cropping of the ground together with the comparatively low pH of the soil appear to hold this trouble in check.

SEPTORIA LEAF SPOT (Septoria lycopersici). Reports of Septoria leaf spot were confined to the Coastal Districts. The indications are that the effect on yield was not serious.

VERTICILLIUM WILT (Verticillium dahliae). The only recorded occurrence of this disease was at Cowra and only a trace percentage of the crop was affected.

BIG BUD (virus) was present chiefly in inland districts where some crops were affected to the extent of 5 to 10%. Most coastal plantings were free of the disease, though a 20% infection was encounted in one crop at Windsor.

MOSAIC (virus). One specimen was received from the Dubbo District. Outdoor coastal crops were virtually free of the disease but glasshouse crops were attacked to the extent of about 10% in some cases.

TWO VIRUS STREAK (Virus). There were no field reports of this disease. Most glasshouses were free of infestation but in one house at Warriewood, total loss occurred.

RIPE ROT (Colletotrichum phomoides). One report of the occurrence of the ripe rot of tomato fruit was received from the Tamworth district.

MAGNESIUM DEFICIENCY. Leaf symptoms of magnesium deficiency were observed in glasshouse tomatoes in Northern Suburbs of the Metropolitan Area. A similar condition was reported from outdoor crops at Wentworth Falls and Shortland.

BLOSSOM DROP (non-parasitic). Numerous crops were affected by blossom drop in plantings prior to December. The coastal district was mostly concerned. A comparatively late Spring and intermittant periods of low temperature appear to be the most probable source of the trouble.

BLOSSOM END ROT (non-parasitic). Comparatively few commercial crops showed this disease during the 1945-46 season, though small percentage losses were experienced with the variety San Marzana in the Windsor district. Many specimens of blossom end rot were received from home gardeners during the Spring and early Summer. Dry weather and hand hose irrigation probably c combined to bring about the trouble.

SUN SCALD. Disfigurement due to sun-scald was observed in San Marzana tomatoes in the Windsor district. The Tatura Dwarf Globe variety was also affected at Batlow.

MISCELLANEOUS CROPS.

COWPEA.

No reports.

INDIAN HEMP.

No reports.

INDIGO.

No reports.

JUTE.

No reports.

LINSEED.

No reports.

PEANUT.

BLACK SPOT (Cercospora personata) was reported from Macksville.

SESAME.

No reports.

SOYBEANS.

No reports.

SUNFLOWER.

RUST (Puccinia helianthi) was reported to be prevalent in the Gerringong district.

TUNG OIL TREES.

No reports.

MISCELLANEOUS PLANTS.

KURRAJONG (Sterculia diversifolia).

ROOT ROT (Phytophthora sp.) continues to cause the death of trees in the Leeton and Griffith areas. Trees grown for shade and ornamental purposes in the streets are overwatered because of the necessity for watering grass or flower beds in their vicinity. Trees along channel banks and orchard headlands where seepage occurs are also frequently affected.

LANTANA.

ROOT ROT (Phytophthora parasitica) was found to be responsible for the death of bushes of the common lantana (L. camara) at Carool, Tweed River.

PIGWEED. (Portulaca oleracea).

ROOT ROT (Rhizoctonia solani) was recorded causing death of this weed in citrus orchard at Kenthurst.

PLANE (Oriental).

BLIGHT (Gnomonia veneta) Twig and leaf blight was observed on street and park trees in Cowra and Narrandera. A particularly severe attack was recorded from Bowral. Cool moist weather in early spring is favourable for the development of this disease.

WILD POPPY. (Papaver hybrida).

DOWNY MILDEW (Peronospora arborescens) was observed in a weed crop at Griffith causing yellowing and distortion. Infection appeared to be systemic.

SWINES CRESS (Coronopus didymus).

DOWNY MILDEW (Peronospora sp.) was recorded from Wyong.

THORN APPLE (Datura stramonium).

LEAF SPOT (Alternaria sp.) was recorded causing defoliation of weeds at Orangeville.